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### REMARKS

Claim 14 has been amended and new claims 24-32 have been added.

Applicants respectfully request further examination and reconsideration of claims 1-32 now pending in the application.

If the specification and/or claims should require any further amendment, the kind assistance of the Examiner in entering an Examiner's Amendment would be greatly appreciated.

The last Office Action mailed April 29, 2004 has been carefully considered and indicates that:

Claims 1-23 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Walsh *et al.* '789 in view of Cohn.

In response to the Examiner's rejection of claims 1-23 under 35 U.S.C. § 103(a) as being unpatentable over Walsh *et al.* '789 in view of Cohn, applicants:

1. Have amended claim 14 to reflect proper dependency.
2. Have added new claim 24 to include the limitations of claims 1 and 5.
3. Have added new claim 25 to include the limitations of claims 1, 6, 7, 14, and 17.

4. Have added new claim 26 to include the limitations of claims 1, 6, 7, 19, and 20.
5. Have added new claim 27 to better define the present invention;
6. Have added new claim 28 to include the limitations of claims 27 and 5.
7. Have added new claim 29 to include the limitations of claims 27, 6, 7, 14, and 17.
8. Have added new claim 30 to include the limitations of claims 27, 6, 7, 19, and 20.
9. Have added new claim 31 to include the limitations of claims 27, 6, and 16.
10. Have added new claim 32 to include at least a portion of the limitations of claims 27, 6, 7, 14, and 17.
11. Respectfully present the following arguments.

Pursuant to 37 CFR § 1.111(c), claim 1, and all claims derived therefrom or related thereto, define the following advantageous distinctive features that distinguish over and avoid the prior art:

- a) “the second piece of sheet metal [14] has a raw free end [20] with at least one wedge-shaped reverse button lock projection [22] thereon”  
[Emphasis added]
- b) “...the joggle [24] on the raw free end [20] of the second piece of sheet metal [14 offsets] the

second piece of sheet metal [14]..."[Emphasis added]

- c) "said free edge [40] of said third wall [36] is folded inwardly onto itself so as to form a folded free edge [42]"[Emphasis added]

It was decided in *In re Miller*, 169 USPQ 597 (CCPA 1971) that all of advantageous distinctive features a), b), and c) discussed *supra*, and those others discussed throughout the instant amendment, must be met in determining patentability:

"All words in a claim must be considered in judging the patentability of that claim against the prior art."[at 600][Emphasis added]

Furthermore, regarding advantageous distinctive features a) and b) discussed *supra*, statements in a preamble may not be disregarded in determining patentability. A descriptive preamble can be quite helpful in obtaining allowance of the claim. Where an introductory phrase in claim of patent application is not limited to indicating use but contributes an element to the claims, the phrase is necessarily a limitation on the subject matter of the claim, *i.e.*, where introductory phrase in claim for patent is so used as not to be limited in indicating use, but contributes an element to the claim, the phrase is treated as a limitation upon subject matter of claim, as was decided in *In re Duva*, 156 USPQ 90 (CCPA 1967); *Application of Craige*, 189 F.2d 620, 38 CCPA, Patents, 1114 (1951); and in *Application of Benner*, 174 F.2d 938, 36 CCPA, Patents, 1081 (1949).

When the connector 10 for joining two lengths of sheet metal ducting 12, 14 together end-to-end and the two pieces of sheet metal 12, 14 of the present invention are designed in

accordance with the advantageous distinctive features of claim 1 and all claims derived therefrom or related thereto, *inter alia*:

1. The second piece of sheet metal **14** is easily slid into the second channel **44** of the connector **10** because friction is reduced by virtue of having only buttons **22** engaging the connector **10** as opposed to a full width hem engaging the connector **10** when the second piece of sheet metal **14** is slid into the connector **10**, *i.e.*, less contacting surface areas, and the wedge shape of the button **22** forms a rounded converging leading surface for guiding the second piece of sheet metal **14** into the connector **10** *ipso facto* “the second piece of sheet metal [14] has a raw free end [20] with at least one wedge-shaped reverse button lock projection [20] thereon”[Emphasis added] and because the raw free end **20** of the second piece of sheet metal **14** rolls easily over the free edge [40] of the third wall [36] *ipso facto* “said free edge [40] of said third wall [36] is folded inwardly onto itself so as to form a folded free edge [42]”[Emphasis added].
2. The raw free end **20** of the second piece of sheet metal **14** is fabricated to engage into the connector **10** on-site by a hand-held tool so as to allow for exact last minute on-site adjustment of the joint just prior to joining the second piece of sheet metal **14** into the connector **10** as opposed to the raw free end **20** of the second piece of sheet metal **14** being fabricated at the factory by a stationarily fixed roll former which would leave no room for exact last minute on-site adjustment of the joint just prior to joining the second piece of sheet metal **14** into the connector **10** *ipso facto* “the second piece of sheet metal [14] has a raw free end [20] with at least one wedge-shaped reverse button lock projection [22] thereon”[Emphasis added].

3. The other raw free end of the second piece of sheet metal 14, which can now be considered to be the raw free end 16 of the first piece of sheet metal 12 when being inserted into the first channel 38 in a next connector 10, can be inserted into the first channel 38 in a next connector 10 without a need for field dressing *ipso facto* "...the joggle [24] on the raw free end [20] of the second piece of sheet metal [14 offsets] the second piece of sheet metal [14]..."[Emphasis added].
4. The sealing compound material 54 in the second channel 44 in the connector 10 is held back and maintained in the second channel 44 in the connector 10 against escaping *ipso facto* "said free edge [40] of said third wall [36] is folded inwardly onto itself so as to form a folded free edge [42]"[Emphasis added].

Even though the advantageous distinctive features of the present invention discussed *supra* may not have been disclosed and discussed specifically in the specification of the patent application as it was originally filed, they still must be relied upon as evidence of patentability, as was decided in *In re Chu*, 66 F.3d 292, 36 USPQ.2d 1089 (Fed. Cir. 1995), where the Court held:

"Board of Patent Appeals and Interferences erred, in upholding obviousness rejection of applicant's claims, by concluding that claims' disclosure was matter of "design choice," and that the applicant's evidence and arguments to contrary are not present in specification and are therefore unpersuasive, since board is required to consider totality of record and is not free to disregard evidence and arguments presented by applicants, and since there is no support for proposition that evidence and/or arguments traversing 35 USC 103 rejection must be contained within specification, given that

obviousness is determined by totality of record including, in some instances most significantly, evidence and arguments proffered during give-and-take of ex parte patent prosecution."[at 1090][Emphasis added]

"Because the Board was required to consider the totality of the record, the Board was not free to disregard the evidence and arguments presented by Chu in response to the obviousness rejection. Additionally, the Board erred in apparently requiring Chu's evidence and arguments responsive to the obviousness rejection to be within his specification in order to be considered. To require Chu to include evidence and arguments in the specification regarding whether placement of the SCR catalyst in the bag retainer was a matter of "design choice" would be to require patent applicants to divine the rejections the PTO will proffer when patent applications are filed."[at 1094][Emphasis added]

"We have found no cases supporting the position that a patent applicant's evidence and/or arguments traversing a § 103 rejection must be contained within the specification. There is no logical support for such a proposition as well, given that obviousness is determined by the totality of the record including, in some instances, most significantly, the evidence and arguments proffered during the give-and-take of ex parte patent prosecution."[at 1095][Emphasis added]

Regarding claims 1, 14, 23-26, and all claims derived therefrom or related thereto, applicants respectfully draw the Examiner's attention to the fact that the Federal Circuit holds that relevant case law must be relied upon in determining obviousness *ipso facto* the determination of obviousness is a matter of law, as was decided in *In re Deuel*, 51 F.3d 1552, 1557, 34 USPQ.2d (BNA) 1210, 1214 (Fed. Cir. 1995), where the Court held:

"Obviousness is a question of law, which we review *de novo*, though factual findings underlying the Board's obviousness determination are reviewed for clear error. *In re Vaeck*, 947 F.2d 488, 493, 20 USPQ2d 1438, 1442 (Fed. Cir. 1991); *In re Woodruff*, 919 F.2d 1575, 1577, 16 USPQ2d 1934, 1935 (Fed. Cir. 1990)."[at 1214][Emphasis added]

And, in *Richardson-Vicks Inc. v. The Upjohn Co.*, 122 F.3d 1476, 44 USPQ.2d 1181 (Fed. Cir. 1997), where the Court held:

"The difficulty with RVI's position is that, although the argument has merit when the issue is purely one of fact, it does not follow when the issue involves a question of law. It is black letter law that the ultimate question of obviousness is a question of law."*See Graham v. Deere Co.*, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966) (citing *Great A. & P. Tea Co. v. Supermarket Equip. Co.*, 340 U.S. 147, 155, 87 USPQ 303, 309 (1950)); *In re Donaldson Co.*, 16 F.3d 1189, 1192, 29 USPQ2d 1845, 1848 (Fed. Cir. 1994) (*in banc*); *Texas Instruments Inc. v. Unit States Int'l Trade Comm'n*, 988 F.2d 1165, 1178, 26 USPQ2d 1018, 1028 (Fed. Cir. 1993). And we review that legal question without deference to the trial court. *See Gardner V. TEC Sys. Inc.*, 725 F.2d 1338, 1344, 220 USPQ 777, 782 (Fed. Cir. 1984) (district court's conclusion on obviousness "is one of law and subject to full and independent review in this court")."[at 1183][Emphasis added]

In the seminal case of *Graham v. John Deere Co.*, 383 U.S. 1, 17, 148 USPQ 459, 467, 15 L.Ed. 2d 545, 86 S. Ct. 684 (1966), the Supreme Court articulated the requirements for a *prima facie* holding of obviousness. The Patent Office has since set forth in *MPEP* § 706.02 a three step requirement for establishing a *prima facie* case of obviousness.



The first step requires that the Examiner must set forth the differences in the claim over the applied references. The second step requires that the Examiner must set forth the proposed modification of the reference which would be necessary to arrive at the claimed subject matter. And, the third step requires that the Examiner must explain why the proposed modification would be obvious.

The Courts require that in order to satisfy the third step for establishing a *prima facie* case of obviousness, the Examiner must identify where the prior art provides a motivating suggestion to make the modifications proposed in the second step for establishing a *prime facie* case of obviousness, as was expressed in the 1992 Federal Circuit Court decision in *In re Jones*, 958 F.2d 347, 21 USPQ.2d 1941, where the Court held:

"Contention that one skilled in the herbicidal art would have been motivated to use, with acid commonly known as "dicamba," substituted ammonium salt such as that disclosed in two prior references does not warrant holding that claimed substituted ammonium salt of dicamba for use as herbicide is prima facie obvious, since there is no suggestion for combining disclosures of those references either in references themselves, which are directed to shampoo additives and production of morpholine, respectively, or in knowledge generally available to those skilled in the art." [at 1941][Emphasis added]

"The Solicitor points out that, given the breadth of forms of dicamba (free acid, ester, or salt) disclosed by Richter as having herbicidal utility, one of ordinary skill in the art would appreciate that the dicamba group has significance with respect to imparting herbicidal activity to dicamba compounds. Thus, the solicitor contends, one skilled in the art would have been motivated to use, with dicamba, substituted ammonium salts made from a known amine, such as the amine disclosed by Zorayan and

Wideman, and would have expected such a salt to have herbicidal activity. Before the PTO may combine the disclosures of two or more prior art references in order to establish *prima facie* obviousness, there must be some suggestion for doing so, found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art." *In re Fine*, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598-99 (Fed. Cir. 1988). We see no such suggestion in Zorayan, which is directed to shampoo additives, nor Wideman, which teaches that the amine used to make the claimed compound is a byproduct of the production of morpholine. Nor does the board disclosure of Richter fill the gap, for the reasons discussed above." [at 1943-44] [Emphasis added]

And, in *Gambro Lundia AB v. Baxter Healthcare Corporation*, 110 F.3d 1573, 42 USPQ.2d 1378 (Fed. Cir. 1997), where the court held:

"Prior art article does not provide teaching, suggestion, or reason to substitute computer-controlled valves for system of hoses used in prior art devices, and therefore does not render obvious invention of patent in suit...." [at 1379] [Emphasis added]

"Without a suggestion or teaching to combine, Baxter's case of obviousness suffers a significant deficiency." [at 1384] [Emphasis added]

The Courts further require that even if the prior art may be modified as suggested by the Examiner, the modification is not made obvious unless the prior art suggests the desirability of the modification, as was expressed in the 1992 Federal Circuit Court decision in *In re Fritch*, 922, F.2d 1260, 23 USPQ.2d 1780, where the Court held:

"Mere fact that prior art may be modified to reflect features of claimed invention does not make modification, and hence claimed invention, obvious unless desirability of such modification is suggested by prior art...."[at 1780][Emphasis added]

"The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification. *In re Gordon*, 733 F.2d at 902, 221 USPQ at 1127."[at 1783] [Emphasis added]

Further, the *Fritch* Court held at 1783 that the patent applicant may attack the Examiner's *prima facie* determination as improperly made out and tending to support a conclusion of nonobviousness:

"In proceedings before the Patent and Trademark Office, the Examiner bears the burden of establishing a *prima facie* case of obviousness based upon the prior art...[The Examiner] can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead to that individual to combine the relevant teachings of the references. The patent applicant may then attack the Examiner's *prima facie* determination as improperly made out, or the applicant may present objective evidence tending to support a conclusion of nonobviousness."[at 1783] [Emphasis added]

In properly applying the *Graham v. John Deere Co.* test in light of, *inter alia In re Jones* and *In re Fritch* discussed *supra*, the Examiner must conduct a rigorous examination and analysis of the prior art.

Neither Walsh *et al.* '789, Cohn, nor for that matter any of the other references cited by the Examiner, make any motivating suggestion that, *inter alia*:

1. Regarding claims 1, 24-26, and all claims derived therefrom or related thereto, specifically:
  - a) The third wall 14 of the connector of Walsh *et al.* '789 can be modified to have the vestibule wall 70 of Cohn (relied upon by the Examiner as the folded free edge 42 of the third wall 36 of the present invention), as suggested by the Examiner.
  - b) The second piece of sheet metal 30 of Walsh *et al.* '789 can be modified to have the male double-thickness tab 58 of the male formation 16 of Cohn, as suggested by the Examiner.
  - c) The second piece of sheet metal 30 of Walsh *et al.* '789 can be modified to have the joggle 61 of Cohn, as suggested by the Examiner.
2. Regarding claims 14, 25, and all claims derived therefrom or related thereto, specifically, the third wall 14 of the connector of Walsh *et al.* '789 can be modified to have the vestibule wall 70 of Cohn, as suggested by the Examiner.
3. Regarding claim 23, and all claims derived therefrom or related thereto, specifically, the second piece of sheet metal 30 of Walsh *et al.* '789 can be modified to have the joggle 61 of Cohn, as suggested by the Examiner.

What the Examiner has done *supra* was to find individual features separately in the prior art and combine them in a piecemeal manner in light of applicants' disclosure by using applicants' own specification as though it were prior art, and in doing so, has violated the basic mandate inherent in 35 U.S.C. § 103, as was decided in *In re Stephens, Wenzl, and Browne*, 145 USPQ 656 (CCPA 1965), where the Court reversed a rejection on a combination of references and held:

"References may not be combined indiscriminately and with guidance from applicant's disclosure to show that the claims are unpatentable." [at 656] [Emphasis added]

"...references may not be combined indiscriminately and with guidance from appellants' disclosure to show that claims are unpatentable...." [at 657] [Emphasis added]

And, in *Panduit Corp. v. Burndy Corporation et al.*, 180 USPQ 498 (District Court, N.D. Illinois, E. Div.), where the Court held:

"Inquiry into the patentability must be directed toward subject matter as a whole and not to elements of a combination and their individual novelty...." [at 498] [Emphasis added]

"The inquiry into the patentability must be directed toward the subject matter as a whole and not to the elements of the claimed combination and their individual novelty...." [at 505] [Emphasis added]

And, in *Monarch Knitting Mach. Corp. v. Sulzer Morat GmbH*, 139 F.3d 877, 45 USPQ.2d 1977 (Fed. Cir. 1998), where the Court held:

"...defining problem in terms of its solution reveals improper hindsight in selection of prior art relevant to obviousness...."[at 1978]  
[Emphasis added]

"...defining the problem in terms of its solution reveals improper hindsight in the selection of the prior art relevant to obviousness. See, e.g. *In re Antle*, 444 F.2d 1168, 1171-72, 170 USPQ 285, 287-88 (CCPA 1971) (warning against selection of prior art with hindsight)." [at 1981]  
[Emphasis added]

With further regard to claims 1, 24-26, and all claims derived therefrom or related thereto, it is apparent that the Examiner has taken facts beyond the record by stating at page 4, line 17 to page 5, line 2 of the last Office Action a statement that appears to be contrary to the PTO policy in *MPEP* § 706.02(a) directing Examiners never to overlook the importance of allowing claims that properly define patentable subject matter:

"Regarding to having at least one wedge-shaped reverse button lock projection in the second piece of sheet metal, it would have been obvious to one having ordinary skill in the art at the time of applicant's invention to have the folded edge taught by Cohn replaced with the least one wedge-shaped reverse button lock projection disclosed by Walsh because both the folded free edge and the at least one wedge-shaped reverse button lock projection are used to lock the end of a sheet of metal to the connector."[Emphasis added]

What the Examiner wants to do *in toto* is to first modify the second piece of sheet metal of Walsh *et al.* '789 to have the male double-thickness tab 58 of Cohn and then exchange the male double-thickness tab 58 of Cohn with the at least one wedge-shaped reverse button lock projection 22 of the present invention.

It is improper, if not inequitable, for the Examiner to rely on this fact as evidence for rejection, as was decided in *In re Howard*, 394 F.2d 869 (CCPA 1968), where the Court held:

"I do not see how, without any evidence, we can use the doctrine of judicial notice to find that a system exists which anticipates that of the application or is nearly like it as to make the application an obvious variation...[.] Without some concrete evidence (of which there is none) I do not think that it is possible to find that the system of this application is old or that it is obvious under Section 103."[at 872][Emphasis added]

And, in *In re Ahlert*, 165 USPQ 418, 420 (CCPA 1970), where the Court held:

"...assertions of technical facts in areas of esoteric technology must always be supported by citation to some reference work recognized as standard in the pertinent art..."[at 418] [Emphasis added]

"Assertions of technical facts in areas of esoteric technology must always be supported by citation to some reference work recognized as standard in the pertinent art..."[at 420] [Emphasis added]

Furthermore, the Examiner is not obligated to find such rejection simply to be able to reject every claim in the application. The at least one wedge-shaped reverse button lock projection **22** of the present invention is not equivalent to the male double-thickness tab **58** of Cohn, and therefore does deserve patentable weight as will be demonstrated *infra*.

The test for equivalence is whether it would have been obvious to one of ordinary skill in the art at the time of the invention to substitute applicants' claim limitation for that described in the prior art reference, as was decided in *In re Brown*, 459 F.2d 531, 535, 173 USPQ 685, 688 (CCPA 1972). Thus, the test is reciprocal interchangeability, *i.e.*, the interchangeability must be two-way.

It would not have been obvious to one of ordinary skill in the art at the time of the invention to substitute applicants' claim limitation, *i.e.*, the at least one wedge-shaped reverse button lock projection 22 for that described in the prior art reference, *i.e.*, the male double-thickness tab 58 of Cohn.

Replacing the male double-thickness tab 58 of Cohn with the at least one wedge-shaped lock projection 22 of the present invention would prevent the device of Cohn from functioning in its intended manner and as such cannot support a holding of obviousness because the Board held in *Ex parte Weber*, 154 USPQ 491 that in order to uphold obviousness the rearrangement of the prior-art device cannot prevent the device from functioning in the intended manner

"Claims are not rejected for obviousness since rearrangement of prior machine would so alter its construction and mode of operation that it would not function in its intended manner..." [at 491][Emphasis added]

"It is our opinion that the cited prior art does not teach that it would be obvious to rearrange the machine of Hemper et al. as proposed by the examiner. To do so, would completely alter the construction and mode of operation of the stencil cutter of Hemper et al., so that it would not function in its intended manner. It appears



to us that the obviousness of the proposed changes is not derived from the cited prior art, but only from appellant's disclosure."[at 492]  
[Emphasis added]

"Rearrangement of prior machine would so alter its construction and mode of operation that it would not function in its intended manner; obviousness of proposed changes is not derived from cited prior art but from applicant's disclosure."[Emphasis added]

It is the intended manner of functioning of the sheet metal duct **12** of Cohn to have the sheet metal duct **12** assembled on-site without the use of tools and sealing compounds, as discussed at numerous occurrences throughout Cohn, for example:

"An object of my invention is to provide duct assemblies which may be...assembled on the premises without the use of tools or sealing compounds."[page 1, col. 1, lines 4-9 of Cohn]  
[Emphasis added]

This is accomplished by rolling the free edge of the male formation **16** of Cohn into the male double-thickness tab **58** and having this male double-thickness tab **58** engage against the terminal engageable edge **71** of the female formation **18** when the male double-thickness tab **58** of the male formation **16** is inserted into the female channel **66** in the female formation **18**, as shown in **FIGURES 10 and 11** of Cohn relied upon by the Examiner and as discussed at page 3, col. 2, lines 29-48 of Cohn, where it is disclosed:

"In assembling operation the male tongue **62** is urged forwardly until the rounded sides of its leading edge **59** engage the inner rounded sides of the entrance walls **64** and **69** of the female formation **18**. Further advance of the tongue **62**

cams the vestibule wall 70 downwardly against the resilience of the forward wall 67, until the leading edge 59 comes into proximity of said forward wall 67, and the shoulder 61 abuts the entrance wall 64. In this process, the male double-thickness tab 58 terminating in the rearwardly inclined edge 61, uncovers the forwardly inclined female engageable edge 71 of the vestibule wall 70; and the vestibule wall 70 snaps upwardly into clamping position against the single-thickness male portion 59, thereby encasing the male double-thickness tab 58 and securely locking the male formation 16 within the female formation 18.[Emphasis added]

In order to roll the free edge of the male formation 16 into the male double-thickness tab 58 of Cohn, a roll forming machine is required which is quite expensive, heavy, and voluminous, and more importantly, must be stationarily fixed as exemplified by Cohn's need for fabrication of its components to be at a factory prior to delivery to the site, as discussed at numerous occurrences throughout Cohn, for example at page 1, col. 1, lines 4-5 of Cohn, where it is disclosed:

"An object of my invention is to provide duct assemblies which may be fabricated at the factory...."[Emphasis added]

Even though the at least one wedge-shaped reverse button lock projection 22 of the present invention forms a "secure connection," it provides a "secure mechanical connection" not a "leakproof connection" and as such requires the use of the adhesive sealing compound material 54. This alleged drawback is, however, counted by the increased ease of sliding the second piece of sheet metal 14 into the second channel 44 of the connector 10 because friction is reduced by virtue of having only discrete buttons 22 engaging the connector 10 as opposed

to a full width hem engaging the connector **10** when the second piece of sheet metal **14** is slid into the connector **10**, *i.e.*, less contacting surface areas, and the wedge shape of the projection **22** forms a rounded converging leading surface for guiding the second piece of sheet metal **14** into the connector **10** as discussed *supra*.

By exchanging the male double-thickness tab **58** of Cohn with the at least one wedge-shaped lock projection **22** of the present invention as suggested by the Examiner, the duct assembly of Cohn cannot be assembled on-site without the use of tools and sealing compounds, which is required for its intended manner of functioning as discussed *supra*, and which will be demonstrated *infra*.

First, the at least one wedge-shaped reverse button lock projection **22** has to be put into the male formation **16** of Cohn at the site by use of a hand-held tool so as to allow for exact last minute on-site adjustment of the joint just prior to joining the male formation **16** into the female formation **18**, with such hand-held tool being the subject matter of another application. Therefore, a tool is required on-site.

Second, the joint formed by the female channel **66** in the female formation **18** receiving the at least one wedge-shaped reverse button lock projection **22** of the male formation **16** would require sealing compound since the at least one wedge-shaped reverse button lock projection **22** would not fill up the female channel **66** in the female formation **18** leaving a void for leaks which are countered by the use of the adhesive sealing compound material **54** of the present invention filling the void in the female channel **66** in the female formation **18** and also filling the void inherent in the wedge-shaped reverse button lock projection **22** itself. Therefore, sealing compound is required.

*Quod erat demonstrandum*, exchanging the male double-thickness tab 58 of Cohn with the at least one wedge-shaped lock projection 22 of the present invention as suggested by the Examiner would prevent Cohn from functioning in its intended manner and therefore pursuant to *In re Weber* discussed *supra* the exchange would not be obvious, *i.e.*, contrary to the Examiner's statement cited *supra* it would not have been obvious to one having ordinary skill in the art at the time of applicant's invention to have the folded edge taught by Cohn replaced with the least one wedge-shaped reverse button lock projection disclosed by Walsh.

If the Examiner still maintains such rejection, applicants respectfully request that the Examiner provide a reference that teaches the advantageous distinctive feature of "the second piece of sheet metal [14 having] a raw free end [20] with at least one wedge-shaped reverse button lock projection [22] thereon"[*Emphasis added*] as required by *In re Howard* and *In re Ahlert* discussed *supra* or an affidavit detailing the Examiner's knowledge as one of ordinary skill in the art to which the present invention pertains affirming that "Regarding to having at least one wedge-shaped reverse button lock projection in the second piece of sheet metal, it would have been obvious to one having ordinary skill in the art at the time of applicant's invention to have the folded edge taught by Cohn replaced with the least one wedge-shaped reverse button lock projection disclosed by Walsh because both the folded free edge and the at least one wedge-shaped reverse button lock projection are used to lock the end of a sheet of metal to the connector."[*Emphasis added*] as required by 37 CFR § 1.107(b), where it is ruled that:

"When a rejection in an application is based on facts within the personal knowledge of an employee of the Office, the data shall be as specific as possible, and the reference must be supported, when called for by the applicant, by

the affidavit of such employee, and such affidavit shall be subject to contradiction or explanation by the affidavits of the applicant and other persons."[Emphasis added]

From the equivalence argument presented *supra*, it would appear that Cohn teaches away from the present invention, a fact that must be considered in determining patentability, as was decided in *General Tire and Rubber Co. v. Firestone Tire and Rubber Co.*, 174 USPQ 427, where the Court held:

"In assessing prior art, court must have regard for all signposts contained in it; it must consider the passages which point away from the invention as well as those said to point toward it...."[at 429][Emphasis added]

"In assessing the prior art, the Court must have regard for all of the signposts contained in it. It must consider the passages and references which point away from the invention as well as those said to point toward it."[at 429] [Emphasis added]

And, in *In re Gurley*, 27 F.3d 551, 31, 31 USPQ.2d 1130 (Fed. Cir. 1994), where the Court held:

"Prior art reference that "teaches away" from claimed invention is significant factor to be considered...."[Emphasis added]

And, in *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1550-51, 220 USPQ 303, 311 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984), where the Court held:

"District court that considers references in less than their entirety, i.e., in disregarding disclosures in references that diverge away from teach away from invention at hand, errs."[at 304][Emphasis added]

"...in considering the references in less than their entirety, i.e., in disregarding disclosures in the reference that diverge from and teach away from the invention at hand. In re Kuderna, 426 F.2d 385, 165 USPQ 575 (CCPA 1970)."[at 311][Emphasis added]

The signpost of Cohn that teaches away from the present invention is that the male double-thickness tab **58** of Cohn presents a large frictional surface area to overcome when inserted into the connector, whereas the at least one wedge-shaped reverse button lock projection **22** of the present invention presents a small frictional surface area to overcome when inserted into the connector. Thus, the male double-thickness tab **58** of Cohn would be non-productive in producing the result that the at least one wedge-shaped reverse button lock projection **22** of the present invention does and therefore Cohn can be said to teach away from the present invention.

This signpost of Cohn that teaches away from the present invention must be considered in creating a holding of unpatentability, as required by *General Tire and Rubber Co. v. Firestone Tire and Rubber Co.*, *In re Gurley*, and *W.L. Gore & Associates, Inc. v. Garlock, Inc.* discussed *supra*, which when analyzed will indicate that the Examiner's rejection appears to be improper.

Regarding claims 5 and 24, pursuant to 37 CFR § 1.111(c), claim 5 defines and claim 24 further defines the following advantageous distinctive feature that distinguishes over and avoids the prior art:

“said connector [10] is made from extruded plastic.”Emphasis added]

In order to met this limitation of claims 5 and 24, the Examiner has again taken facts beyond the record by stating at page 5, lines 13-16 of the last Office Action another statement that again appears to be contrary to the PTO policy in MPEP § 706.02(a) directing Examiners never to overlook the importance of allowing claims that properly define patentable subject matter:

“...it would have been obvious to one having ordinary skill in the art at the time of applicant’s invention to make the connector from extruded plastic, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice.”[Emphasis added]

Again, it is improper, if not inequitable, for the Examiner to rely on this fact as evidence for rejection, as was decided in *In re Howard* and *In re Ahlert* discussed *supra*.

Furthermore, the Examiner is again not obligated to find such rejection simply to be able to reject every claim in the application. Making the connector 10 for joining a pair of ducts 12, 14 end-to-end of extruded plastic is not obvious, as will be demonstrated *infra*.

Applicants' have conducted an online search of the USPTO database using the keywords "duct" AND "connector" AND "extruded" AND "plastic" to see if a connector for joining a pair of ducts end-to-end that was made of extruded plastic was ever patented. Even though 280 hits occurred using this Boolean expression, none of the hits where for a connector for joining a pair of ducts end-to-end that was made of extruded plastic as further supported by no hits occurring when the Boolean expression was refined to "duct connector" AND "extruded plastic." If making a connector 10 for joining a pair of ducts 12, 14 end-to-end of extruded plastic is obvious, why was it apparently never done before?

The Examiner herself, apparently using some hindsight for motivation, has cited at page 5, lines 17-19 of the last Office Action multiple benefits of making the connector 10 for joining a pair of ducts 12, 14 end-to-end of extruded plastic:

"...the use of plastic is highly recommended because of its light weight that is highly desired in ducts, it will not become corroded as metal connectors and the connector will be easier and less costly to make because of the extrusion process."[Emphasis added]

For example, the Examiner's use of hindsight that the connector 10 is not corrosive is clearly discussed at page 15, lines 10-11 of the application, where it is disclosed:

"The one continuous piece of pliable sheet metal 52...combat corrosion..." [Emphasis added]

And, in claim 4, where it is defined:



“...said one continuous piece of pliable sheet metal [52]...combat corrosion.”[Emphasis added]

Even though the advantageous feature of making the connector 10 for joining a pair of ducts 12, 14 end-to-end of extruded plastic discussed *supra* may not have been disclosed and discussed specifically in the specification of the patent application as it was originally filed, it still must be relied upon as evidence of patentability, as was decided in *In re Chu* discussed *supra*.

If the Examiner still maintains such rejection, applicants respectfully request that the Examiner provide a reference that shows the advantageous distinctive feature of “said connector [10] is made from extruded plastic.”[Emphasis added] as required by *In re Howard* and *In re Ahlert* discussed *supra* or an affidavit detailing the Examiner's knowledge as one of ordinary skill in the art to which the present invention pertains affirming that “...it would have been obvious to one having ordinary skill in the art at the time of applicant's invention to make the connector from extruded plastic, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice.”[Emphasis added] as required by 37 CFR § 1.107(b) discussed *supra*.

Regarding claims 17 and 25, pursuant to 37 CFR § 1.111(c), claim 17 defines and claims 25 further defines the following advantageous distinctive feature that distinguishes over and avoids the prior art:

“said free edge [68] of said flange [66] is folded onto itself in a direction away from said ledge [34] so as to form a folded free edge [70]”  
[Emphasis added]

In order to met this limitation of claims 17 and 25, the Examiner has again taken facts beyond the record by stating at page 8, line 22 to page 9, line 6 of the last Office Action another statement that again appears to be contrary to the PTO policy in *MPEP* § 706.02(a) directing Examiners never to overlook the importance of allowing claims that properly define patentable subject matter:

“...it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the [free edge of the flange] folding away from the ledge instead of folding toward the ledge because a change in shape of a prior art device is a design consideration within the skill in the art. *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966). Especially since the applicant fails to provide any advantage derived from orienting of the folded edge away from the ledge instead of being oriented toward the ledge.”Emphasis added]

Again, it is improper, if not inequitable, for the Examiner to rely on this fact as evidence for rejection, as was decided in *In re Howard* and *In re Ahlert* discussed *supra*.

Furthermore, the Examiner is again not obligated to find such rejection simply to be able to reject every claim in the application. The folded free edge 70 of the flange 66 being oriented away from the ledge 34 instead of being oriented toward the ledge 34 is not just a

matter of design choice but is rather critical and does deserve patentable weight, as will be demonstrated *infra*.

Upon review of *In re Dailey*, relied upon by the Examiner, it is revealed that the shape of a device must be considered in determining patentability if the shape is significant:

"Appellants have presented no argument which convinces us that the particular configuration of their container is significant or is anything more than one of numerous configurations a person of ordinary skill in the art would find obvious for the purpose of providing mating surfaces in the collapsed container of Matzen. See *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459."  
[Emphasis added]

Orienting the folded free edge 70 of the flange 66 away from the ledge 34 instead of being oriented toward the ledge 34 is significant. By orienting the folded free edge 70 of the flange 66 away from the ledge 34 instead of being oriented toward the ledge 34 more lateral space is provided above the fourth wall 60 for the adapter chuck of the tool required to put the screw in the drill rail 64 in the fourth wall 60. Thus as required by the Examiner, applicants have provided the advantage derived from orienting the folded free edge 70 of the flange 66 away from the ledge 34 instead of being oriented toward the ledge 34, with such advantage being collaborated by an affidavit under 37 CFR §132 if so requested by the Examiner.

*Quod erat demonstrandum*, the folded free edge 70 of the flange 66 being oriented away from the ledge 34 instead of being oriented toward the ledge 34 is not just a matter of design choice but is rather critical and does deserve patentable weight.

Even though the advantageous feature of the folded free edge 70 of the flange 66 being oriented away from the ledge 34 instead of being oriented toward the ledge 34 discussed *supra* may not have been disclosed and discussed specifically in the specification of the patent application as it was originally filed, it still must be relied upon as evidence of patentability, as was decided in *In re Chu* discussed *supra*.

If the Examiner still maintains such rejection, applicants respectfully request that the Examiner provide a reference that shows the advantageous distinctive feature of “said free edge [68] of said flange [66] is folded onto itself in a direction away from said ledge [34] so as to form a folded free edge [70]”[Emphasis added] as required by *In re Howard* and *In re Ahlert* discussed *supra* or an affidavit detailing the Examiner's knowledge as one of ordinary skill in the art to which the present invention pertains affirming that “...it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the [free edge of the flange] folding away from the ledge instead of folding toward the ledge because a change in shape of a prior art device is a design consideration within the skill in the art. In re Dailey, 357 F.2d 669, 149 USPO 47 (CCPA 1966). Especially since the applicant fails to provide any advantage derived from orienting of the folded edge away from the ledge instead of being oriented toward the ledge.”[Emphasis added] as required by 37 CFR § 1.107(b) discussed *supra*.

Regarding claims 20 and 26, pursuant to 37 CFR § 1.111(c), claim 20 defines and claim 26 further defines the following advantageous distinctive feature that distinguishes over and avoids the prior art:

“said height of said flange [66] is in a range of approximately  $\frac{3}{8}$  inches to approximately  $1\frac{3}{8}$  inches”[Emphasis added]

In order to met this limitation of claims 20 and 26, the Examiner has again taken facts beyond the record by stating at page 9, lines 14-19 of the last Office Action another statement that again appears to be contrary to the PTO policy in *MPEP* § 706.02(a) directing Examiners never to overlook the importance of allowing claims that properly define patentable subject matter:

“...it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the height of the flange being in a range of approximately  $\frac{3}{8}$  inches to approximately  $1\frac{3}{8}$  inches, since such a modification would have involved a mere change of the size of a component. A change in size is generally recognized as being with the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955).”[Emphasis added]

Again, it is improper, if not inequitable, for the Examiner to rely on this fact as evidence for rejection, as was decided in *In re Howard* and *In re Ahlert* discussed *supra*.

Furthermore, the Examiner is again not obligated to find such rejection simply to be able to reject every claim in the application. The height of the flange 66 being in a range of approximately  $\frac{3}{8}$  inches to approximately  $1\frac{3}{8}$  inches is not just a mere change of the size of a component but is rather critical and does deserve patentable weight, as will be demonstrated *infra*.

Upon review of *In re Rose* relied upon by the Examiner, it is revealed that yes *In re Rose* does address size limitations:

“Size of article ordinarily is not matter of invention.”[at 237][Emphasis added]

“...the size of the article under consideration...is not ordinarily a matter of invention. *In re Yount*, 36 C.C.P.A. (Patents) 775, 171 F.2d 317, 80 USPQ 141.”[Emphasis added]

And, upon review of *In re Yount* cited in *In re Rose supra*, it is revealed:

“Mere size ordinarily is not matter of invention....”[Emphasis added]

It was held in the case of *In re Kirke*, 17 C.C.P.A. (Patents) 1121, 40 F.2d 765, 5 USPQ 539, that mere size is not ordinarily a matter of invention.”[Emphasis added].

So we see from the Examiner’s use of “generally,” the *Rose* Court’s use of “ordinarily,” and the *Yount* Court’s use of “ordinarily” in their holdings, that size not being inventive is not a “hard and fast rule,” and that such language alludes to an exception. Let’s see if we can find this exception.

Upon review of *In re Kirke* cited in *In re Yount supra*, the exception is revealed:

“Obviously, as a general proposition, there is nothing patentable in making a machine or apparatus larger or smaller, if it produces the same result in the same manner\* \* \*.”[at 541]  
[Emphasis added]

Thus, size is not inventive if, and only if, the size change produces the same result in the same manner.

Applying this to the case at hand, it is revealed that changing the height of the flange 66 does not produce the same result in the same manner. The flange 66 is relied upon as a stiffener to prevent the connector 10 from bending, as does the web of a beam. Like the web of a beam, the flange's ability to prevent bending is dependent upon its height relative to the length of the connector 10. Thus, the height of the flange 66 is directly proportional to the length of the connector 10 as defined in claim 19. As the length of the connector 10 changes so must the height of the flange 66 so that a short flange 66 would not protect a long connector 10 from bending, *i.e.*, the result is height specific. Since the result is different, it is moot to address the manner in which the result is achieved.

*Quod erat demonstrandum*, even though the height of the flange 66 being in a range of approximately  $\frac{3}{8}$  inches to approximately  $1\frac{3}{8}$  inches is a change of the size, it has been demonstrated *supra* that it is rather critical and does deserve patentable weight.

If the Examiner still maintains such rejection, applicants respectfully request that the Examiner provide a reference that shows the advantageous distinctive feature of "said height of said flange [66] is in a range of approximately  $\frac{3}{8}$  inches to approximately  $1\frac{3}{8}$  inches" [Emphasis added] as required by *In re Howard* and *In re Ahlert* discussed *supra* or an affidavit detailing the Examiner's knowledge as one of ordinary skill in the art to which the present invention pertains affirming that "...it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the height of the flange being in a range

of approximately  $\frac{3}{8}$  inches to approximately  $1\frac{3}{8}$  inches, since such a modification would have involved a mere change of the size of a component. A change in size is generally recognized as being with the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955).”[Emphasis added] as required by 37 CFR § 1.107(b) discussed *supra*.

Applicants have provided clear and convincing evidence that neither Walsh *et al.* ‘789, Cohn, nor for that matter any of the references cited by the Examiner, accomplish applicants’ result of providing an efficient connector 10 for joining two lengths of sheet metal ducting 12, 14 together end-to-end and the two pieces of sheet metal that, *inter alia*:

1. Facilitates sliding the second piece of sheet metal 14 into the second channel 44 in the connector 10 by virtue of the use of at least one wedge-shaped reverse button lock projection 22 on the raw free end 20 of the second piece of sheet metal 14 reducing friction as opposed to the raw free end 20 of the second piece of sheet metal 14 being rolled into a hook increasing friction and because the raw free end 20 of the second piece of sheet metal 14 rolls easily over the free edge [40] of the third wall [36].
2. Allows the raw free end 20 of the second piece of sheet metal 14 to be fabricated to engage into the connector 10 on-site by a hand-held tool so as to allow for exact last minute on-site adjustment of the joint just prior to joining the second piece of sheet metal 14 into the connector 10 as opposed to the raw free end 20 of the second piece of sheet metal 14 being fabricated at the factory by a stationarily fixed roll former which would leave no provision for exact last minute on-site adjustment of the joint just prior to joining the second piece of sheet metal 14 into the connector 10 by virtue of the use of at least one wedge-shaped reverse button lock projection 22 on the raw



free end **20** of the second piece of sheet metal **14** as opposed to the raw free end **20** of the second piece of sheet metal **14** being rolled into a hook.

3. Allows the other raw free end of the second piece of sheet metal **14** to be inserted into the first channel **38** of a next connector **10** without a need for field dressing by virtue of the joggle **24** near the raw free end **20** of the second piece of sheet metal **14**.
4. Allows the joggled and notched end **20** of the second piece of sheet metal **14** to be easily slid into the more rigid connector **10** when making the final connection because the installer can flex the joggled and notched end **20** of the second piece of sheet metal **14**.
5. Holds back and maintains the sealing compound material **54** in the second channel **44** in the connector **10** against escaping.
6. Is light weight and non-corrosive by virtue of being plastic.
7. Is easy and less costly to make by virtue of the plastic being extruded.
8. Provides more lateral space above the fourth wall **60** for the adapter chuck of the tool required to put the screw in the drill rail **64** in the fourth wall **60**.
9. Eliminates bending of any length connector **10** by virtue of the flange **66** having a height that is proportional to the length of the connector **10**.

Therefore, a holding of obviousness cannot be made out, as decided in *In re Wright*, 122 USPQ 522 (1959), where the Court held:

"Mere aggregation of old parts or elements which, in the aggregation, perform or produce no new or different function or operation than that heretofore performed or produced by them, is not a patentable invention [but n]ovel combination of old elements which so cooperate with each other so as to produce new and useful result or substantial increase in efficiency, is patentable."[at 522][Emphasis added]

"The mere aggregation of a number of old parts or elements which, in the aggregation, perform or produce no new or different function or operation than that heretofore performed or produced by them, is not a patentable invention [but] a novel combination of old elements which so cooperate with each other so as to produce a new and useful result or substantial increase in efficiency, is patentable."[at 522][Emphasis added]

And, even though the present invention may be considered simple and accomplishes only a small but genuine improvement by some is not sufficient reason to deny it patent protection, as was decided in *Schnell et al. v. The Albright-Nell Company et al.*, 146 USPQ 322 (7<sup>th</sup> Cir. 1965), where the Court held:

"Device seems simple...in light of patentee's teaching, but it evidently was not...at time of invention; those working in the field did not accomplish patentee's results; that fact supports conclusion that patentee achieved patentable invention."[at 322][Emphasis added]

"This now seems simple...in the light of the Schnell teaching, but is was evidently not...at the time of the invention. Those working in the

field did not accomplish Schnell's results. That fact supports the conclusion that Schnell achieved patentable inventions. Pyle Nat. Co. v. Lewin, 7 Cir., 1937, 92 F.2d 628, 630, 35 USPQ 40, 42."[at 324][Emphasis added]

The Board of Appeals expressed the same concept when it held in *Ex parte Grasenick and Gessner*, 158 USPQ 624 (Bd. of App. 1967), that:

"Improvement over prior art, even though it be simple...is patentable...."[Emphasis added][at 624]

"This rejection is in error. An improvement over the prior art, even though it be simple ...is patentable....The examiner has neither cited evidence establishing the [unpatentability] of appellant's modification of the prior art nor demonstrated that the improved results claimed by appellants are not available from their construction."[at 624] [Emphasis added]

Thus, simplicity does not operate as a bar to patentability.

In light of, *inter alia In re Miller, In re Duva, Application of Craige, Application of Benner, In re Chu, In re Deuel, Richardson-Vicks Inc. v. The Upjohn Co., the Graham v. John Deere Co. test in light of, inter alia MPEP § 706.02, In re Jones, Gambro Lundia AB v. Baxter Healthcare Corporation, and In re Fritch, In re Stephens, Wenzl, and Browne, Panduit Corp. v. Burndy Corporation et al., Monarch Knitting Mach. Corp. v. Sulzer Morat GmbH, MPEP § 706.02(a), In re Howard, In re Ahlert, In re Brown, Ex parte Weber, 37 CFR § 1.107(b), General Tire and Rubber Co. v. Firestone Tire and Rubber Co., In re Gurley, W.L. Gore & Associates, Inc. v. Garlock, Inc., In re Dailey, In re Rose, In re Yount, In re Kirke, In re Wright, Schnell et al. v. The Allbright-Nell Company et al., Ex parte Grasenick and Gessner*

discussed *supra*, pursuant to *In re Fritch* at 1783 applicants attack the Examiner's *prima facie* determination as being improperly made out and tending to support a conclusion of nonobviousness.

In view of the amendment made *supra* to claim 14 to reflect proper dependency, the addition of new claim 24 to include the limitations of claims 1 and 5, the addition of new claim 25 to include the limitations of claims 1, 6, 7, 14, and 17, the addition of new claim 26 to include the limitations of claims 1, 6, 7, 19, and 20, the addition of new claim 27 to better define the present invention, the addition of new claim 28 to include the limitations of claims 27 and 5, the addition of new claim 29 to include the limitations of claims 27, 6, 7, 14, and 17, the addition of new claim 30 to include the limitations of claims 27, 6, 7, 19, and 20, the addition of new claim 31 to include the limitations of claims 27, 6, and 16, the addition of new claim 32 to include at least a portion of the limitations of claims 27, 6, 7, 14, and 17, and the arguments presented *supra*, applicants respectfully submit that the Examiner's grounds for the rejection of claims 1-23 under 35 U.S.C. § 103(a) as being unpatentable over Walsh *et al.* '789 in view of Cohn are no longer tenable and applicants therefore respectfully request that the rejection be withdrawn.

The prior art made of record and not applied upon has been carefully considered.

In view of the above, it is submitted that the claims are in condition for allowance. Reconsideration and withdrawal of the rejection is respectfully requested. Allowance of

claims 1-32 at an early date is earnestly solicited.

Respectfully,

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Dated: New York, NY